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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,710	06/24/2005	Roel Van Woudenberg	NL 021379	2487

24737 7590 12/13/2007
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

RAINEY, ROBERT R

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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12/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/540,710	Applicant(s) VAN WOUDEBERG, ROEL	
	Examiner Robert R. Rainey	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>24 June 2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 1-5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 3-5, 8, and 11** rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0036610 to *Ito et al.* ("*Ito*").

As to **claim 1**, *Ito* discloses an electro-optical apparatus and a method of driving an electro-optical apparatus and in particular: An optical electronic information display device (see for example abstract), operative to display images during frame times (see for example Fig. 3, with an example frame time labeled 1F), characterized in that it is arranged to operate in either one of at least two modes of operation, wherein in a first mode of operation each frame time is divided into a first number of subfields (see for example Fig. 3b); and in a second mode of operation each frame time is divided into a second number of subfields (see for example Fig. 3a), the number of subfields in the second mode of operation being larger than the number of subfields in the first mode of operation (see for example Fig. 3 noting that 6 subfields are shown in Fig. 3a compared to 4 subfields shown in Fig. 3b), and in that it comprises means for switching between the first and second modes of operation (see for example Fig. 4 item 250) (see also for example paragraphs 46-50 for a text description of Figs. 3 and 4).

As to **claim 3**, in addition to the rejection of claim 1 *Ito* further discloses that the means for switching is controllable by means of user input (see for example paragraph 100 "levels ... as specified by the user").

As to **claim 4**, in addition to the rejection of claim 1 *Ito* further discloses that a larger number of gray scales are provided in the second mode of operation

than in the first mode of operation (see for example paragraph 100 with for example "64" representing the number of levels in the second mode of operation and "16" representing the number of levels in the first mode of operation).

As to **claim 5**, in addition to the rejection of claim 1 *lto* further discloses that a first set of coding rules are employed in the first mode of operation and a second set of coding rules are employed in the second mode of operation, the first and the second set of coding rules being different from each other (see for example abstract or Figs. 3 and 4 or paragraphs 46-50; note that *lto* discloses coding the image data in three separate ways: into "64", "16" and "2" gray levels).

Claim 8 represents the method implicit in the apparatus of claim 1 and is rejected on the same grounds and arguments as claim 1.

Claim 11 represents the method implicit in the apparatus of claim 5 and is rejected on the same grounds and arguments as claim 5.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 2 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0036610 to *Ito et al.* ("*Ito*") in view of U.S. Patent Application Publication No. 2002/0011978 to *Yamazaki et al.* ("*Yamazaki*") and Japanese Patent Application No. JP 11352929 A to *Yamamoto et al.* ("*Yamamoto*").

As to **claim 2**, in addition to the rejection of claim 1 over *Ito*:

Ito does not expressly disclose an ambient light sensor device, wherein said means for switching is responsive to an output of said sensor device to make the display operate in the first mode of operation when the sensor is exposed to bright ambient conditions and to make the display operate in the second mode of operation when the sensor is exposed to dark ambient conditions.

Yamazaki discloses a display device in which the luminance of a display screen can be controlled in response to the brightness of a surrounding using a sensor device (see for example Fig. 1 item 107 "Photosensor" and page 1 paragraph 2)

Ito and *Yamazaki* are analogous art because they are from the same field of endeavor, which is user interface displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to add display brightness control according to ambient light conditions as taught by *Yamazaki* to the apparatus taught by *Ito*. The

suggestion/motivation would have been to provide advantages such as to avoid deterioration of visibility (see for example Yamazaki paragraph 9).

Ito and *Yamazaki* do not expressly disclose making the display operate in the first mode of operation when the sensor is exposed to bright ambient conditions and to make the display operate in the second mode of operation when the sensor is exposed to dark ambient conditions.

Yamamoto discloses a display drive system using a subfield method and in particular: increasing display brightness by decreasing the number of subfields (see for example abstract or Fig. 1).

Ito, *Yamazaki* and *Yamamoto* are analogous art because they are from the same field of endeavor, which is user interface displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to add display brightness control according to ambient light conditions as taught by *Yamazaki* to the apparatus taught by *Ito* and to further extend the range of brightness correction by using fewer subfields to achieve higher brightness as taught by *Yamamoto*. The suggestion/motivation would have been to provide advantages such as to avoid deterioration of visibility (see for example Yamazaki paragraph 9) or to provide greater display brightness dynamic range than that provided by gamma correction alone (see for example Yamamoto abstract "visual luminance gets about 1.5 times").

Claim 9 represents the method implicit in the apparatus of claim 2 and is rejected on the same grounds and arguments as claim 2.

6. **Claims 6 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0036610 to *Ito et al.* ("*Ito*") in view of Japanese Patent Application No. JP 11352929 A to *Yamamoto et al.* ("*Yamamoto*").

As to **claim 6**, in addition to the rejection of claim 1 over *Ito*:

Ito does not expressly disclose the first mode of operation providing for brighter images than does the second mode of operation.

Yamamoto discloses a display drive system using a subfield method and in particular: the first mode of operation providing for brighter images than does the second mode of operation (see for example abstract or Fig. 1, in Fig. 1 the first mode of operation would be the lower figure with fewer subfields and the second mode of operation would be the upper figure with more subfields).

Ito and *Yamamoto* are analogous art because they are from the same field of endeavor, which is user interface displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to use fewer subfields to achieve higher brightness as taught by *Yamamoto* in the apparatus after *Ito*. The suggestion/motivation would have been to provide advantages such as to avoid deterioration of visibility or to provide greater display brightness dynamic range (see for example *Yamamoto* abstract for example "increase light-emitting frequency").

As to **claim 10**, in addition to the rejection of claim 8 over *Ito*, *Ito* further discloses that the step of selecting a mode of operation is performed depending on a number a gray scales for the image (see for example abstract or Fig. 1, in Fig. 1 the first mode of operation would be the lower figure with fewer subfields and the second mode of operation would be the upper figure with more subfields).

Ito does not expressly disclose that the step of selecting a mode of operation is performed depending on a trade-off between brightness and a number a gray scales for the image.

Yamamoto discloses a display drive system using a subfield method and in particular: selecting a mode of operation depending on the desired brightness for the image (see for example abstract or Fig. 1, in Fig. 1 the first, i.e. brighter, mode of operation would be the lower figure with fewer subfields and the second, i.e. less bright, mode of operation would be the upper figure with more subfields).

Ito and *Yamamoto* are analogous art because they are from the same field of endeavor, which is user interface displays.

The selection of any particular number of subfields would require a tradeoff between maximum number of gray scales after *Ito* and maximum brightness after *Yamamoto*. Since the prior art teaches the effects of the number of subfields on both the number of gray scales and the brightness: at the time of

invention, it would have been obvious to a person of ordinary skill in the art to account for both desired gray scale and brightness in selecting the operating mode. The suggestion/motivation would have been to provide advantages such as to optimize the image quality or to provide greater display brightness dynamic range (see for example *Yamamoto* abstract for example "increase light-emitting frequency").

7. **Claims 7 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0036610 to *Ito et al.* ("*Ito*") in view of U.S. Patent No. 6,628,246 to *Van Gorkom* ("*Van Gorkom*").

As to **claim 7**, in addition to the rejection of claim 1 over *Ito*, *Ito* further discloses that the drive method is applicable to any electro-optical apparatus which allows a gray scale display using pixels which perform an on/off binary display.

Ito does not expressly disclose the display device being a dynamic foil display.

Van Gorkom discloses a dynamic foil display (see for example Figs. 1 and 2. or column 1 lines 11-25).

Ito and *Van Gorkom* are analogous art because they are from the same field of endeavor, which is on/off binary displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the DFD after *Van Gorkom* with the driving method of *Ito*. The suggestion/motivation would have been to provide advantages such as to use an art recognized type of on/off binary display or to offer wider operating temperature range.

Claim 12 represents the method implicit in the apparatus of claim 7 and is rejected on the same grounds and arguments as claim 7.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. 2003/0011626 to Tanabe et al. discloses changing the number of subfields in accordance with the number of gray scales of an image.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert R. Rainey whose telephone number is (571) 270-3313. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RR/


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SUPERVISORY PATENT EXAMINER